Volunteer Lake Assessment Program Individual Lake Reports

CANOBIE LAKE, WINDHAM, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,408	**Max. Depth (m):**	15.2	**Flushing Rate (yr^{1})**	0.3
Surface Area (Ac.):	373	**Mean Depth (m):**	5.5	**P Retention Coef:**	0.83
Shore Length (m):	8,400	**Volume (m^3):**	8,379,000	**Elevation (ft):**	219

TROPHIC CLASSIFICATION

Year	Trophic class
1987	MESOTROPHIC
2000	OLIGOTROPHIC

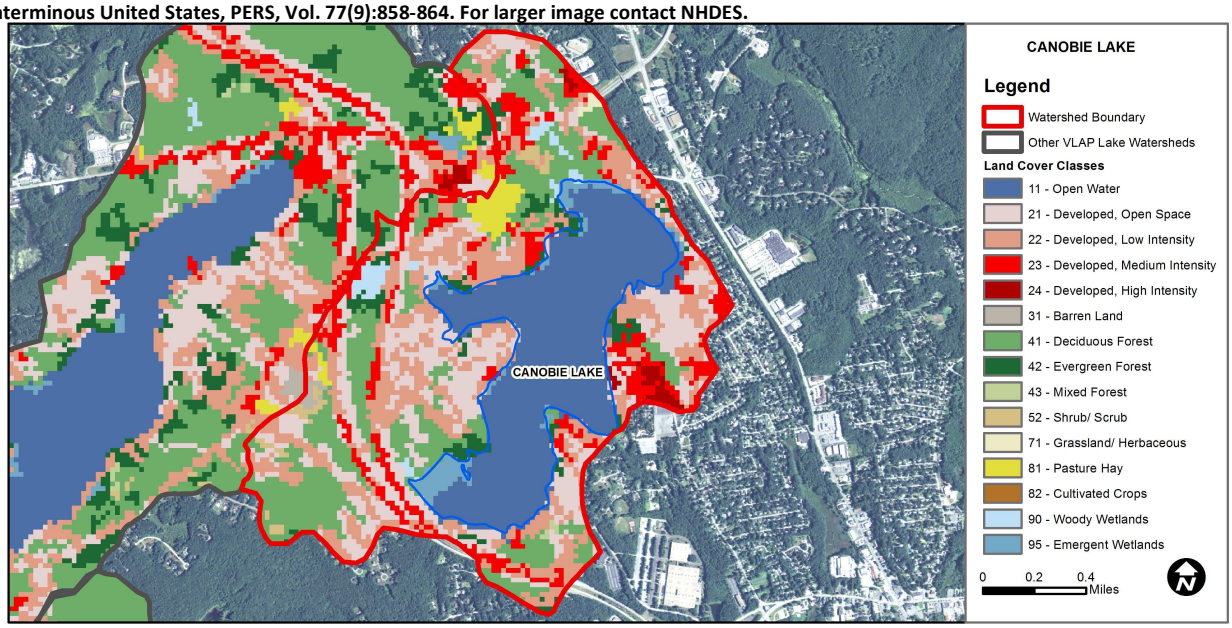
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Good	At least 10 samples with 1 sample but < 10% of samples exceeding criteria.
	D.O. (mg/L)	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



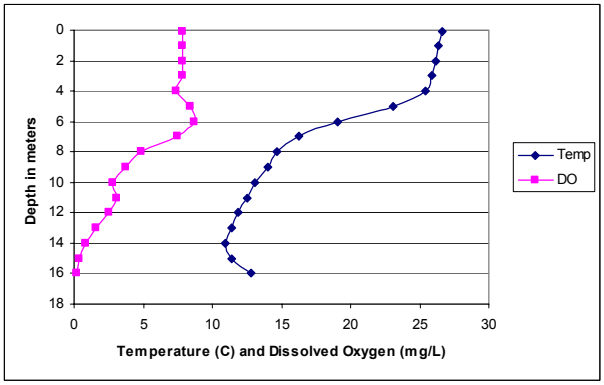
Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	25.4	Barren Land	0.25	Grassland/Herbaceous	0.19
Developed-Open Space	18.1	Deciduous Forest	17.28	Pasture Hay	1.47
Developed-Low Intensity	19.3	Evergreen Forest	3.26	Cultivated Crops	0
Developed-Medium Intensity	8.36	Mixed Forest	0.11	Woody Wetlands	1.36
Developed-High Intensity	0.83	Shrub-Scrub	0.9	Emergent Wetlands	2.21

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
CANOBIE LAKE, WINDHAM, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels were relatively low and less than the NH lake median. Historical trend analysis indicates chlorophyll has significantly decreased (improved) since monitoring began. We hope to see this continue.
- **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride levels were elevated and much greater than NH Lake median values.
- **TOTAL PHOSPHORUS:** Deep spot and tributary phosphorus levels were low and below the NH lake median. Historical trend analysis indicates a relatively stable epilimnetic (upper water layer) phosphorus level since monitoring began.
- **TRANSPARENCY:** Transparency was good in 2012 and above the NH lake median. Historical trend analysis indicates a relatively stable transparency since monitoring began.
- **TURBIDITY:** Deep spot and tributary turbidity were low in 2012.
- **PH:** pH levels were sufficient to support aquatic life.
- **RECOMMENDED ACTIONS:** Address elevated conductivity and chloride levels with local and state road agents, and watershed residents. Implement salt reductions strategies where possible. Continue working with local towns to implement watershed district ordinances. Keep up the great work!

Dissolved Oxygen & Temperature Profile



Canobie Lake Phytoplankton Population

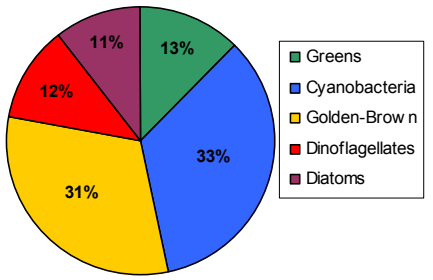


Table 1. 2012 Average Water Quality Data for CANOBIE LAKE

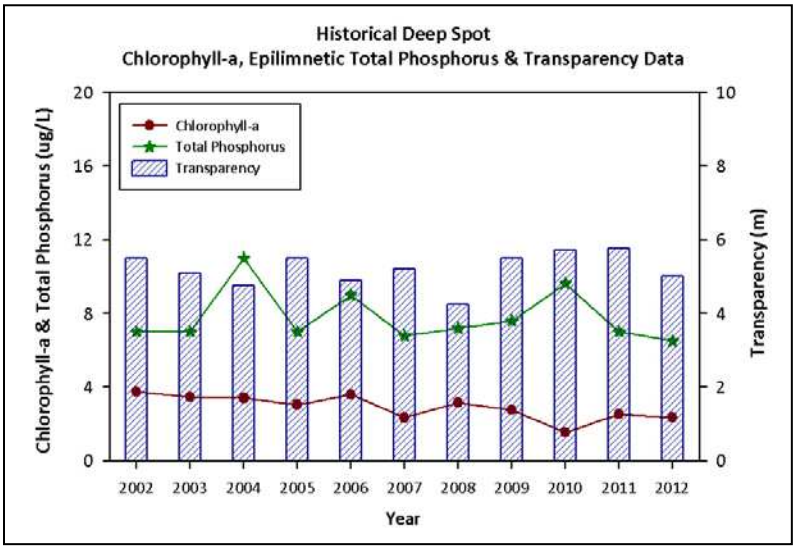
Station Name	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	m		ntu	
						NVS	VS		
Deep Epilimnion	20.6	2.35	56	281	7	5.00	5.55	0.67	7.43
Deep Metalimnion				280	9			0.61	6.71
Deep Hypolimnion				278	10			0.57	6.63
Inlet			56	285	9			0.58	7.11

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Improving	Data have significantly decreased.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Stable	Data not significantly increasing or decreasing.



This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:
Sara Steiner
PO Box 95
Concord, NH 03302-0095
(603) 271-2658
sara.steiner@des.nh.gov